

Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11444, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11444
EGU General Assembly 2008
© Author(s) 2008



Retrieval of the Earth's surface reflectance over the Po Valley (Italy) from MISR data using a BRDF approach

M. Mazzola, C. Lanconelli, M. Campanelli, A. Lupi, V. Vitale and C. Tomasi
Institute of Atmospheric Sciences and Climate, National Research Council, Italy
(m.mazzola@isac.cnr.it)

Earth's surface albedo play an important role in the climate system: it influences the climate by driving the reflection and the emission of radiation to the atmosphere and is itself dependent on the climate through vegetation growth and snow coverage variations. Therefore, it's knowledge is crucial as a main input in the climate models. Moreover, the characterization of the directional behavior of the surface reflectance is important in the retrieval of informations on the atmosphere composition from satellite measurements.

In the frame-set of QUITSAT, a project founded by the Italian Space Agency (ASI) devoted to Air Quality assessment through the fusion of satellite and ground-based data, we developed a procedure to infer information over the Earth's surface reflectance from satellite multi-angle radiances, over the Po Valley.

The procedure makes use of a wide set of Look Up Tables (LUT) to link satellite radiances data from the MISR (Multiangle Imaging SpectroRadiometer) instrument to the Earth's surface bidirectional reflectance distribution function (BRDF), expressed in terms of the Kuusk's and the Rahman-Pinty-Verstraete's models. The contribution to the measured radiances due to the presence of the atmosphere is evaluated on the basis of the measurements performed with a POM-02 PREDE multi-spectral sun-sky radiometer installed in San Pietro Capofiume (44.65°N, 11.65°E, 5 m a.s.l.), a rural site located 40 km northern to Bologna.

Results obtained from the first measurements campaign, performed from May 15 to July 23 2007, allowed us to define reliables ranges for the BRDF models parameters

and surface albedo in the considered area.